



Portable Solar Panel

Model: AP-SP-037



User Manual

This portable solar panel can charge most high-power energy storage devices on the market. Users simply unfold the solar panels in sunlight to generate electricity. The charging process produces no chemical pollution, is noiseless, and is clean and environmentally friendly. Solar cells are physical batteries that can be used indefinitely. The generation of electricity comes from the conversion of sunlight. Even after five years, due to the aging of the encapsulation and protective materials, the photoelectric conversion of the solar cells can still reach more than 80% of their theoretical conversion rate. This is unlike traditional chemical batteries, whose lifespan is limited by the characteristics of their electrolyte and electrode materials.

■ Specifications

Solar cells: **Monocrystalline silicon**

Peak power of solar panel: **400W**

Open circuit voltage (Voc): **36.5V**

Short-circuit current (Ioc): **14.42A**

Maximum operating voltage (Vmp): **30.5V**

Maximum operating current (Imp): **13.11A**

Solar panel photoelectric conversion efficiency: **23%-25%**

Operating ambient temperature: **-10°C~60°C**

All test results were obtained under standard laboratory conditions (STC: E=1000W/m² TC=25°C AM=1.5).

Unfolded dimensions: **237.5 x 93.5 x 1.5 cm / 93.5 x 36.81 x 0.59 inch**

Folded dimensions: **93.5 x 60 x 6 cm / 36.81 x 23.62 x 2.36 inch**

Product weight: **13.8kg/30.42 lb**

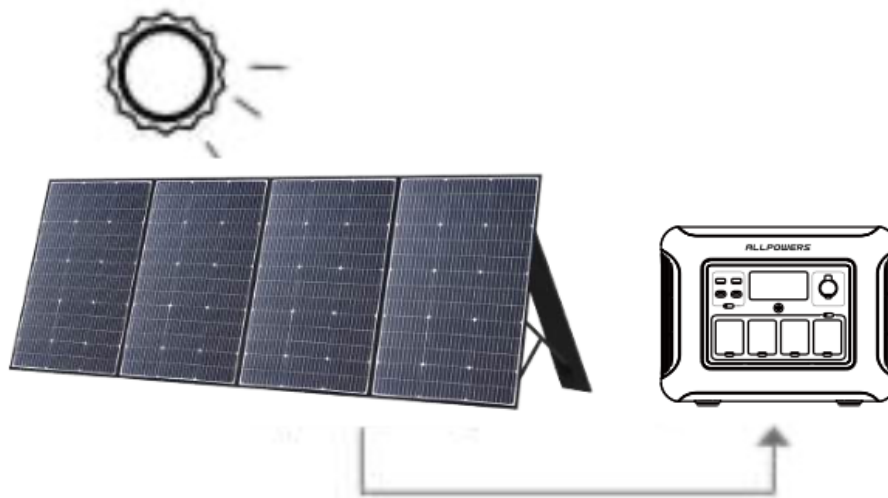
■ How to use

1. Choose the best possible location and angle for your solar power pack to receive sunlight.



- The solar panels must be directly exposed to sunlight, eliminating any potential obstructions (such as tree shadows or buildings).
- The solar panel should be tilted between 30 and 60 degrees to the ground, and the solar panel should be perpendicular to the direction of the solar source as much as possible to obtain the best charging effect.
- When solar panels are placed against any surface or laid flat on any slope, the surface must be flat and dry.
- Choose an effective period of sunlight (e.g., from 9 am to 5 pm). The intensity of sunlight varies at different times, with the peak time being 12 pm to 1 pm. Solar panels can be laid directly on the ground during this period. **The panels produce between 260 - 320 W depending on the angle and intensity of sunlight.**

2. Connecting to the power station



Before charging, we recommend turning off connected devices to reduce the screen's power consumption, allowing the power station to charge faster.

- Solar panels generate electricity as soon as they are exposed to light. They need to be shielded from light before connecting them to the power station (folding them or completely covering them with a cloth is recommended).
- First, connect the charging cable to the input port of the power station, and connect the other end of the charging cable to the output terminal of the solar panels (then unfold the solar panel again).
- Check if the charging logo is displayed on your device. If there is no charging logo, you may need to check wiring to resolve a poor connection. Otherwise, you may need to replace the charging cable.
- Once the charging connection is successfully established, move the power station to a cool, well-ventilated, shaded environment to allow for proper heat dissipation.

3. How to chain multiple solar panels together

This product comes with PV (Photovoltaic) specification MC4 cable (14AWG1 x 2.5mm²) and can output a maximum current of 20A. When connecting multiple units in series or parallel, please use and connect them using the Y-type connector (sold separately) as shown in the diagram below. ("+" is male, "-" is female) If you have any questions regarding the connection method, please contact us.

To prevent malfunctions due to voltage and current mismatches, when connecting multiple solar panels, please use solar panels with output voltages and currents that are as close as possible.

In a parallel connection of solar panels, the voltage remains constant, while the current doubles.

In a series connection of solar panels, the current is constant, while the voltage doubles.

Diagram of parallel connection:

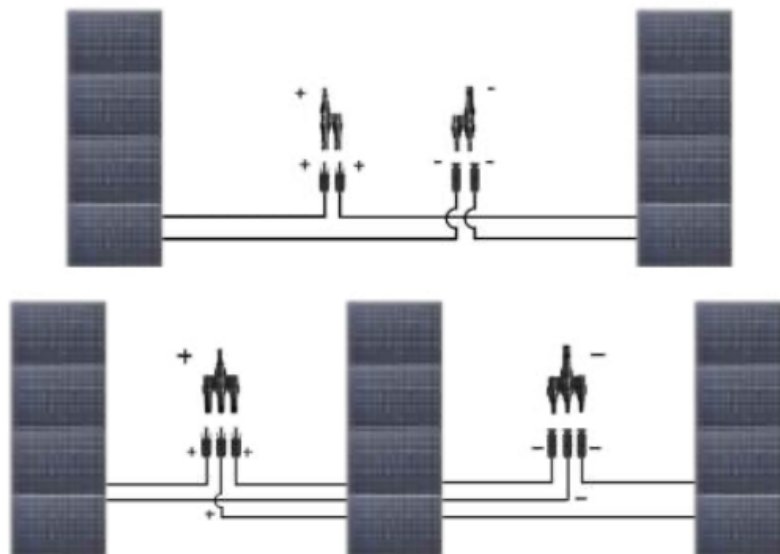
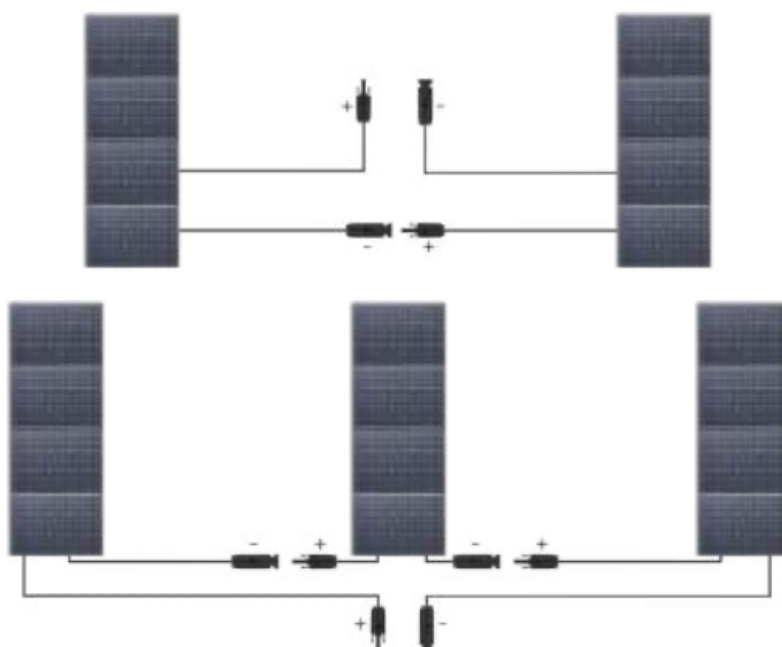


Diagram of series connection:



■ MC4 connector precautions

1. Keep the connectors clean and dry, ensuring that the MC4 connector caps are hand-tight before connecting to the solar panels.
2. Do not attempt to make an electrical connection with wet, soiled, or otherwise faulty connectors.
3. Check the connector connections every 6 months. Avoid exposing connectors to direct sunlight or immersion in water. Avoid resting the connectors directly on the ground (where they can get wet) or a roof surface (where they can get wet or hot).
4. Faulty connections may result in electric shock. Please check that all locking connectors are fully engaged and locked.

■ Useful Tips

1. Without the guidance of professional technicians, please do not attempt to change the product's circuitry or usage. Our company will not be responsible for any damage caused by unauthorized disassembly or alteration of the product's circuitry.
2. Quality assurance guarantee: 3-years for material and workmanship; ensure that output power is 80% within 5 years; 50% within 10 years. There is a loss of 3% of output power during the installation period.
3. Do not step on, stand on, or jump on the surface of the solar panels. Heavy or sharp objects may scratch the solar panels and cause small cracks, affecting output power or causing injury.
4. If the solar panel malfunctions, please stop using it and contact a professional repairman or the manufacturer's after-sales service email address.
5. The solar panel has an IP66 waterproof rating, meaning it is rainproof and can be submerged in water for short periods, but prolonged immersion is prohibited. If a short circuit occurs due to water immersion, please stop using the panel and contact the seller.

■ Maintenance matters

1. The solar panels are for temporary emergency charging purposes only. It is not recommended to leave it outdoors for extended periods, as moisture can shorten the product's lifespan.
2. The PET board should not be bent or subjected to heavy impacts. Handle it gently during use to prevent sharp objects from scratching the PET frosted encapsulation layer and causing a decrease in light transmittance.
3. If the solar panels need to be laid flat on the ground or leaned against any surface, the surface should be kept as flat and dry as possible. Otherwise, prolonged exposure to the sun may cause slight deformation (which can be restored after being flattened and dried again).
4. It is normal for the temperature of the solar panel to rise during operation. It is recommended to let the solar panel cool down naturally after each use before storing it.
5. After long-term use, residual dust may stick to the surface of the solar panels, blocking sunlight and reducing the ability of the monocrystalline silicon wafer to absorb sunlight. The surface dust must be wiped off regularly with a mild, non-abrasive cleaning agent.
6. In hot summer weather, the surface temperature of the dashboard inside a closed vehicle can reach 65-70°C. It is not recommended to let a power station charge any unguarded devices inside such a vehicle.
7. The waterproof rating is IP66, which completely prevents dust from entering and water from being sprayed directly from any direction without penetrating the interior. However, the entire product must not be immersed in water for an extended period of time.

■ Useful Tips

1. Items placed on the portable solar panels should not exceed 15kg, and heavy items should not be stacked.
2. The portable solar panels are for emergency use only and should not be left outdoors for any extended period (more than a week);
3. Portable solar panels should not be folded and stored after being exposed to rain or moisture; they should be dried as soon as possible.

■ Disposal Guide

If possible, please ensure that the product is disposed of in a designated recycling bin and in accordance with local laws and regulations.

■ Contact Us

Using and maintaining a solar power system requires users to have basic electrical knowledge. We recommend consulting with relevant technical personnel before designing or installing the system. Additionally, we offer an 18-month product warranty (starting from the date of purchase). If you have any questions about our products or services or need assistance, please email **support@allpowers.com**, and we will assist you within *one* business day!

Website: **www.allpowers.com**